

Reservoir Level Issues in the Hells Canyon Complex

Technical Report E.5-6

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1. INTRODUCTION

This report focuses on reservoir levels and recreation in the HCC. Specific objectives focus on describing how levels affect the amount, type, and location of recreation use and how they affect the quality of recreation experiences. The study examines seasonal level changes on Brownlee Reservoir and daily level fluctuations on Hells Canyon and Oxbow reservoirs, describing how levels or fluctuations may cause specific problems for recreation users. It also identifies the range of acceptable and preferred levels or fluctuations. Finally, the report summarizes information about historical and current reservoir level regimes, providing context for information about acceptable and preferred reservoir levels.

This report contains results from the same survey data collected for all the recreation use studies. IPC obtained open-ended comments related to reservoir fluctuations for HCC recreationists during on-site (1994-2000) and follow-up mail surveys (2000). Specific questions related to fluctuations were also included in the 2000 mail survey.

2. CONCLUSION

Pg. 24 – "...20% of Brownlee visitors considered levels to be a major factor, and an additional 21% reported that levels were one factor. For this reservoir, about 4 in 10 visitors appear "level sensitive."

BLM questions this finding. Since the survey data did not begin until 1994, it is possible that a large percentage of the visitors that were sensitive to levels no longer return to the area. I expect that 4 in 10 is a very conservative estimate of those that are "level sensitive." It is important to note that those who no longer come because levels are judged unacceptable were not in this sample.

Pg. 30 – "Based on these results, reservoir level has a consistent but small effect on use level. However, the models are based on data from 1994 or later and thus do not consider the much higher use levels that apparently existed on the reservoir during the exceptional crappie years in the late 1980s and early 1990s. The data used in this analysis also do not compare use levels prior to the warm-season reservoir drawdowns that started in 1993. People who have been displaced (those who stopped coming and have not been back) by reservoir level impacts prior to 1993 simply are not considered in these models."

BLM strongly disagrees with the finding that reservoir levels have a small effect on use level. For the reasons given within this paragraph, it seems the model information is not accurate. This paragraph does accurately reflect the inappropriateness expressed by not having pre-1993 data nor displaced user input.

Pg. 31 – “Based on level data from 1994 through September 2001, reservoir levels were within 30 feet of full pool about 74% of the days and within 40 feet about 86% of the days. Therefore, several ramps were unusable only about 15 to 25% of the days. However, this problem is exacerbated by the timing of those lower reservoir levels. In general, flood control and salmon flushes require Brownlee to be drawn down in April and May and then again in mid-July through October. These are prime parts of the reservoir recreation season, so these levels displace users from some ramps.”

It appears the percentages calculated above were based on a full year. The percentage of days between April 1st through October 31st would give a more accurate reflection of user impact. April 1-Oct. 31 is 155 days. 25% of one year is 91 days. In other words, the ramps were unuseable 60% of the peak use season.

Pg. 32 – “However, 2000 was a year that reservoir levels did not have to be lowered significantly for flood control in late spring.... The 2000 sample did not see or rate levels lower than about 44 feet below full pool.”

BLM agrees. The sample period was small, and not reflective of the problems faced by visitors from 1992 to 2000.

Pg. 33 – “There were differences in evaluations for the on-site and mail surveys, with mail responses consistently showing more acceptable ratings and no substantial declining trend after the 0 to 10 feet category. Most significantly, users that saw reservoir levels 40 feet or more below full pool rated them as unacceptable on the on-site survey but marginally acceptable on the mail survey.”

This is very confusing. It is difficult to believe that there was “no substantial declining trend” beyond a 10-foot draw. Plus, it is difficult to believe that anyone felt that a draw over 40 feet was acceptable.

Pg. 33 – “...evaluations clearly become unacceptable as levels drop below 40 foot draw downs.”

BLM agrees with this finding. It is confusing in that it contradicts the previous statement. It appears the data collected gave one result, while the authors came to the appropriate conclusion. The bottom line on this study is that there is a stratification of user satisfaction directly associated with reservoir level.

Pg. 33 – “Upper Brownlee users always rate reservoir levels less acceptable than Lower Brownlee users. As noted above, level changes have more dramatic effects in

Upper Brownlee (... or at Hewitt/Holcomb Parks, Steck Park, Spring Recreation Site, Farewell Bend, or the Oasis area).”

BLM agrees. Every one of the above mentioned sites are non-IPC developed sites. The proposed PM&Es do not address this project impact.

Pg. 34 – “... reservoir levels are best within 5 to 10 feet of full pool, particularly on the upper reservoir, but levels from 0 to 30 feet below full pool are acceptable to most users. Levels are marginal around 30 to 40 feet below full pool, and levels below 40 feet are clearly unacceptable.”

BLM agrees. This finding would be in line with our anecdotal evidence. How this study came to this conclusion is interesting, but the bottom line is OK.

Pg. 36 – “...about two-thirds of the mail sample did not specify minimum or ideal levels on the vertical scale, and these users might be more tolerant of lower levels. On the other hand, the sample does not provide information from users who did not visit the reservoir in 2000, including those who might have been displaced by unacceptable levels. These users are probably less tolerant of lower draw downs.”

BLM does not agree with the assumption that 2/3 of the respondents did not answer the question because they are tolerant. There are many other possible reasons. The fact that the survey did not include data from displaced users is the crux of how this survey is inadequate (even though the conclusion is OK).

Pg. 45 – “1994 was a dry year and did not require a significant spring draw down until mid-May (which never went lower than 20 feet below full pool).”

CORPS requirements for 1994 were a draw of 7.1’ by March 1st.

“2000 was an average year and did not require a large draw down from March through May (reaching a low of about 30 feet below full pool in late April).”

CORPS requirements for 2000 were a draw of: 20.3’ by Feb. 29th, 18.9’ by Mar 31st, and 15.7’ by April 30th.

“1999 was a medium-wet year, so there was a significant draw down to accommodate the spring runoff (with a floor at about 87 feet below full pool for nearly a month from mid-April to mid-May).

CORPS requirements for 1999 were a draw of: 32.5’ by Feb. 28th, 42.4’ by Mar. 31st, and 52.8’ by April 30th.

It appears that in several of the study years, the actual drawdown was greater than that required for flood control by the Corps of Engineers. CORPS requirements do not extend beyond April 30th. This Technical Report needs to explain the discrepancy

between the actual reservoir elevations and what is required by the CORPS and NMFS. (For a complete display of CORPS requirements from 1994 to 2002, see the graph at the end of this study review.)

Pg. 45 – 1994 - “The salmon flush beginning in midsummer was also small relative to inflows, with reservoir levels never reaching more than about 20 feet below full pool.” 1997 – “... it stayed full until early August, when salmon flush releases began exceeding inflows. These releases dropped reservoir levels to about 20 feet below full pool by mid-September, when spawning releases were set. This level led to additional draw downs through mid-October, eventually reaching a floor of about 90 feet below full pool.” 1999 – “Salmon flush flows dropped the reservoir substantially in July to about 25 feet below full pool, when power demand, salmon spawning needs, and lower inflows led to an additional steady drawdown through October, reaching a low of about 50 feet below full pool.” 2000 – “At this point, salmon flush releases caused the reservoir to drop steadily to about 30 feet below full pool in early August. From August through October, reservoir levels varied from about 25 to 40 feet below full pool...”

BLM disagrees that salmon flushes are the sole cause of these later drawdowns. The 1995 NMFS Biological Opinion requests a draw down to 2059' elevation (18' below full pool) in August. The fall drawdown has exceeded that requirement every year since 1997. The recreating public would be quite satisfied with an 18' floor. Actual elevations in 1997-1999 were much lower than required for flood control and/or salmon recovery.

Pg. 47 – “Brownlee Reservoir is also drafted in July and August to provide salmon flush flows in the lower Snake River. The amount of draw down depends upon the water year and inflow levels (see Parkinson, 2002 for details).”

Parkinson's model does not appear to take the salmon flush into consideration. It seems to simulate operations in 2001 and 2002 when IPC did not participate in the flow augmentation program.

Pg. 48 – Proposed Operations Regime – “The drawdown for flood control in the spring will be **larger** than the draw down for salmon restoration in the summer and early fall in all years.”

How can this be stated? The CORPS has the authority to set the flood control needs. This could change annually, as it currently does. NMFS's biological opinion request is already much lower than the CORPS requirement in most years. Is there a power production trade off? In Parkinson's "Hells Canyon Complex Operations Modeling" it states on pg. 12; "After the Fourth of July holiday, the model again drafts the reservoir beginning July 5 each year to simulate IPC customers' power needs during the summer months... actual reservoir elevations by August 31 are a function of IPC's system or load needs and water conditions." If so, it should be stated clearly and not "blamed" on flood control and salmon.

Pg. 52 – “Increased information about current or planned Brownlee levels, however, is still likely to be supported by considerable numbers of Brownlee users.”

BLM agrees that Brownlee visitors would like improved information regarding reservoir levels. However, this study did not address the fact that many users do not speak English as their first language. Creativity is needed to respond to this need. No proposed PM&E addresses this issue.

Pg. 52 – “Based on an analysis of use and reservoir levels, reservoir levels do not “drive” use levels at the HCC reservoirs.... Many people still visit when time is available and weather and or fishing are generally better.”

BLM disagrees. All campground receipts, professional knowledge and personal observations would refute this finding. Prior to the warm-season drawdowns begun in 1992, use levels were MUCH higher than current. The question becomes: Are visitors staying away because of the low water or because the fishing quality has gone down? This chicken/egg question is not what is important. The fact is that use has gone down dramatically.

Pg. 53 – “On-site evaluations of Brownlee reservoir levels suggest that the highest quality conditions are from 5 to 10 feet of full pool. Drawdowns from 10 to 20 feet still provide good quality, but conditions decline below that. At about 25 feet below full pool, **about half** of Brownlee users report that levels are too low, and by 35 feet below, most report that levels are too low to visit.”

BLM agrees. This is a direct contradiction with the previous finding.

Pg. 54 – “When faced with less than acceptable reservoir levels or fluctuations, current HCC visitors generally respond passively: they tolerate or ignore the situation rather than becoming frustrated or dissatisfied or leaving the area.”

BLM disagrees. As stated above, this just does not make sense. The drop in visitation, formation of Friends of Brownlee, and the active role Baker County has taken regarding Brownlee Reservoir levels, does not suggest a passive response.

Pg. 54 – “Brownlee users are divided over whether salmon protection or power generation should be a priority at the expense of reservoir draw downs, but most supported flood control, even if it causes Brownlee to be drawn down each spring.... These broad trade-off questions did not cover the range of subtleties involved in assessing evaluations of complex trade-offs....”

BLM agrees that the questions posed were very biased and led the respondent to answer in an “all or nothing” mode. If degrees of compromise had been presented, the results may have been much different.

3. STUDY ADEQUACY

The study was not conducted during a representative time period. The majority of data was collected from a single year, 2000. This year did not experience the extreme drawdowns that affect recreators. Even though the data seems inadequate, the conclusions and finding are generally acceptable regarding recreators acceptance of reservoir fluctuations. This study did come to conclusions that are valuable in planning PM&Es.

This study was also valuable in that it summarized the two flow regimes as proposed in the Draft License Application and how they may affect the recreation resource. It was successful in raising many questions that require addressing. IPC has a daunting task in determining the impacts of their dams and operation and translating those impacts into quantifiable mitigation.

4. BLM CONCLUSIONS AND RECOMMENDATIONS

The following is a summary of questions yet unanswered, and issues that remain unaddressed, that need additional study information to resolve.

- The study did not sample the pre-1994 users that have been displaced due to dissatisfaction with reservoir fluctuation levels. There has been a significant decline in use. Why have all those users left the HCC?
- This study finds that Upper Brownlee and Powder River Arm are the most affected by reservoir fluctuation. All of the developed sites in these areas are non-IPC owned and operated. Do project operations affect the recreation resource to the point that IPC has a greater share in accommodating those dissatisfied users? What changes need to be made to make the facilities adequate and what is IPC's responsibility to fund?
- The study should display accurately and clearly actual draw down levels versus actual requirements from CORPS and NMFS. There seems to be some discrepancy regarding statements about the cause of the drawdowns.
- Since reservoir levels are valuable information for users to obtain prior to their visit, what could be done to improve the line of communication? Should it serve the multi-lingual population?
- Is there really no relationship between fish populations and reservoir fluctuations? The study should seriously document impacts of reservoir fluctuations on warm water fisheries. It should determine the optimum project operations possible to maximize warm water fisheries with other resource needs.
- The study did not adequately sample visitors to establish what their priorities are when it comes to reservoir management. Are they willing to compromise one resource for the benefit of another? If so, to what degree? And what are the appropriate management actions to accommodate the compromise, if any?

Reservoir Levels in Brownlee

1. Flood Control

Article 42 of the license:

- \$ Total live storage space of 1,000,000 af between 1976 msl and 2077 msl is available to the Corps.
- \$ Required to drawdown to 2034 by March 1 each year (about 500,000 af).

In practice, exemptions from the license condition are granted each year:

Year	Corps Flood Control Requirement
1994	100,000 af (2069.9 msl) by March 1
1995	400,000 af (2044 msl) by March 1, 500,000 (2034.5 ft) by May 1
1996	85,000 af (2071 msl) by Feb. 29, 500,000 (2034.6) by March 31, and 700000 (2012.8) by April 1
1997	500,000 af (2034.6 msl) by Feb. 28, 750,000 (2006.8) by March 31, and 975,000 (1976) by April 30
1998	400,00 af (2044.5 msl) by Feb 28, - decision made to shift to Coulee, actual draft to 338,00 af (2050.2 msl), 150,000 af (2066.1) by April 30
1999	400,000 af (2044.5 msl) by Feb 28, 500,000 af (2034.6) by March 31, and 600,000 af (2024.1) by April 30
2000	265,000 af(2056.7 msl) by Feb 29, 248,000 af (2058.1 msl) by March 31, and 211,000 af (2061.3 msl) by April 30
2001	0 af (2077) by Feb 28.
2002	329,000 af (2051.1 msl) by Feb. 28, 357,000 af (2048.5 msl) by March 31, and 351,000 (2049.1 msl) by April 30 - can be shifted to Coulee, but still needs to be met by April 30

Source: Annual letters from Army Corps of Engineers to Idaho Power Company. The letters are sent to IPC in February each year, IPC then files the letter with FERC.

2. Salmon Recovery

1995 BO

- \$ Elevation between 1995 msl and 2069 msl during May, 2067 in July, and 2059 in August or September, refill in September.

Source: Biological Opinion, Reinitiation of Consultation on 1994-1998 Operation of the Federal Columbia River Power System and Juvenile Transportation Program in 1995 and Future Years, National Marine Fisheries Service, Northwest Region, March 2, 1995.

